

WHAT IS CLAIMED IS:

1. A control device for a hydraulic clutch which is provided in a power train of a vehicle to transmit a drive torque, comprising:

an oil pressure supply unit which supplies oil pressure to engage the clutch;  
and

a programmable controller programmed to:

count an elapsed time following a release of the clutch; and

cause the oil pressure supply unit, when the clutch is engaged from a state of release, to precharge the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch.

2. The control device as defined in Claim 1, wherein the power train comprises a transmission comprising a forward range, a reverse range, and a neutral range, the hydraulic clutch comprises a forward clutch which is engaged in the forward range and released in ranges other than the forward range, and the controller is further programmed to count a continuous time period of selection of a range other than the forward range, and precharge the interior of the forward clutch in accordance with the counted time.

3. The control device as defined in Claim 2, wherein the device further comprises a shift lever which selects the forward range, the reverse range, and the neutral range and an inhibitor switch which detects a selected range of the shift lever, and the controller is further programmed to cause the oil pressure supply unit to

engage the forward clutch when the selected range is shifted to the forward range from another range.

4. The control device as defined in Claim 1, wherein the power train comprises a transmission provided with a forward range, a reverse range, and a neutral range, the hydraulic clutch comprises a reverse clutch which is engaged in the reverse range and released in ranges other than the reverse range, and the controller is further programmed to count a continuous time period of selection of a range other than the reverse range, and precharge the interior of the reverse clutch in accordance with the counted time.

5. The control device as defined in Claim 4, wherein the device further comprises a shift lever which selects the forward range, the reverse range, and the neutral range and an inhibitor switch which detects a selected range of the shift lever, and the controller is further programmed to cause the oil pressure supply unit to engage the reverse clutch when the selected range is shifted to the reverse range from another range.

6. The control device as defined in Claim 1, wherein the controller is further programmed to cause the oil pressure supply unit to precharge the interior of the clutch for a longer period as the elapsed time decreases.

7. The control device as defined in Claim 1, wherein the device further comprises a sensor which detects a temperature of the hydraulic fluid supplied to the clutch, and the controller is further programmed to cause the oil pressure supply unit to

precharge the interior of the clutch for a longer period as the temperature of the hydraulic fluid decreases.

8. The control device as defined in Claim 1, wherein the power train comprises an internal combustion engine which generates driving torque, the control device further comprises a sensor which detects a rotation speed of the engine and the controller is further programmed to cause the oil pressure supply unit to precharge the interior of the clutch with a higher precharge pressure as the rotation speed of the engine increases.

9. The control device as defined in Claim 1, wherein the device further comprises a sensor which detects a temperature of the hydraulic fluid supplied to the clutch, and the controller is further programmed to cause the oil pressure supply unit to precharge the interior of the clutch with a higher precharge pressure as the temperature of the hydraulic fluid decreases.

10. The control device as defined in Claim 9, wherein the controller is further programmed to determine a tentative precharge period based on the precharge pressure and the temperature of the hydraulic fluid, calculate a voidage in the interior of the clutch based on the elapsed time and the temperature of the hydraulic fluid, determine a precharge period based on the product of the tentative precharge period and the voidage, and cause the oil pressure supply unit to precharge the interior of the clutch for the precharge period.

11. A control device for a hydraulic clutch which is provided in a power train of a

vehicle to transmit a drive torque, comprising:

means for supplying oil pressure to engage the clutch;

means for counting an elapsed time following a release of the clutch; and

means for causing the oil pressure supplying means, when the clutch is engaged from a state of release, to precharge the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch.

12. A control method of a hydraulic clutch which is provided in a power train of a vehicle to transmit a drive torque and is engaged by oil pressure, the method comprising:

counting an elapsed time following a release of the clutch; and

precharging the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch.